










**Table 2-H-6 continued**  
**Sacramento to Bakersfield – High-Speed Train Station Evaluation Matrix**  
**Sacramento Stations**






**Station Name** = Station Carried Forward


**Station Name** = Station Eliminated

     = Primary or Secondary Reason for Elimination

Evaluation Criteria	Freeport West	Cal Expo Fairgrounds
<i>Maximize Ridership/Revenue Potential.</i>		
<b>Travel Time</b>	Not Applicable	Not Applicable
<b>Length</b>	Not Applicable	Not Applicable
<b>Population/Employment Catchment</b>		
	●	●
<i>Maximize Connectivity and Accessibility.</i>		
<b>Intermodal Connections</b>	<ul style="list-style-type: none"> <li>• Suburban location</li> <li>• Freeway access: I-5 Florin and Fruitridge ramps ca. 2 miles</li> <li>• Street access: Arterial access from Freeport Bl and Blair Av.</li> <li>• Parking adequate at site.</li> <li>• Transit: Bus access only.</li> </ul>	<ul style="list-style-type: none"> <li>• Suburban location</li> <li>• Freeway access: I-80 Business ½ mi</li> <li>• Transit: Bus ca ½ mi</li> <li>• No rail access.</li> </ul>
	●	<span style="background-color: yellow;">○</span>
<i>Minimize Operating and Capital Costs.</i>		
<b>Length</b>	Not Applicable	Not Applicable
<b>Operational Issues</b>	Unused right-of-way at present.	Not on any existing rail route.
	●	○

Evaluation Criteria	Freeport West	Cal Expo Fairgrounds
<b>Construction Issues</b>	Possible flooding issues.	Flood danger high. New bridge needed over American River
		
<b>Capital Cost</b>	\$110 million Moderate costs	\$110 million plus. Unassessed, but floodplain mitigation relatively high cost item.
		
<b>Right-of-Way Issues/Cost</b>	Existing city-owned land and railroad right-of-way	Need for new alignment. Shared use with Cal Expo.
		
<i>Maximize Compatibility with Existing and Planned Development.</i>		
<b>Land Use Compatibility and Conflicts</b>		
Percent of Conflicting Existing Land Uses (Residences, Institutions, Recreational Areas, and Open Space) within Station Area	78.45	
Primary Land Uses (acreage) within station area	Institutional (40); Residential (254); Transportation (49)	
		
<b>Visual Quality Impacts</b>		
Percent of Visually Sensitive Existing Land Uses (Residential, Institutional, Recreational Areas, and Open Space)	78.45	
Number of scenic corridor and scenic river crossings	0	
		
<b>Water Resources Impacts</b>		
Number of Natural Stream	0	
Number of Wetland Crossings	0	
Total Acreage of Wetlands within Station Area	0	
		

Evaluation Criteria	Freeport West	Cal Expo Fairgrounds
<b>Floodplain Impacts</b>		
Number of FEMA Floodplain Crossings	1	
Total Acreage of FEMA Floodplain Crossings within Station Area	404.70	
		
<b>Threatened &amp; Endangered Species Impacts</b>		
Count of Species	0	
Acreage of Sensitive Habitat within Station Area	0	
		
<i>Minimize Impacts on Social and Economic Resources.</i>		
<b>Environmental Justice Impacts (Demographics)</b>		
Minority Within 1,400' Buffer – 1990 Population	2696	
Low Income Within 1,400' Buffer – 1990 Households	0	
		
<b>Farmland Impacts</b>		
Total Acreage of Important Farmlands Within Station Area (Prime, Unique, and Statewide Importance)	0	
		
<i>Minimize Impacts on Cultural Resources.</i>		
<b>Cultural Resources Impacts</b>		
Number of National Register Resources Within Station Area	0	
		

Evaluation Criteria	Freeport West	Cal Expo Fairgrounds
<b>Parks &amp; Recreation/Wildlife Refuge Impacts</b>		
Count of Parks/Recreation Areas	1	
Total Acreage Parks/Recreation Areas in Station Area	9.91	
		
<i>Maximize Avoidance of Areas with Geologic and Soils Constraints.</i>		
<b>Soils/Slope Constraints</b>		
Not a Distinguishing Factor		
<b>Seismic Constraints</b>		
Not a Distinguishing Factor		
<b>Hazardous Materials/Waste Constraints</b>		
Not a Distinguishing Factor		






















Least Favorable      Most Favorable
















**Table 2-H-7**  
**Sacramento to Bakersfield – High-Speed Train Alignment Evaluation Matrix**  
**Stockton to Modesto Alignment**

**Alignment** = Alignment Carried Forward










**Alignment** = Alignment Eliminated

**Alignment** = Primary or Secondary Reason for Elimination

<b>Evaluation Criteria</b>	<b>Express Loop/BNSF (Downtown Stockton to Modesto Briggsmore)</b>	<b>Express Loop/UPRR (Downtown Stockton to Downtown Modesto)</b>	<b>W99 (Downtown Stockton to Modesto West)</b>
<i>Maximize Ridership/Revenue Potential.</i>			
<b>Travel Time</b>	VHS 11.6 minutes 	VHS 11.4 minutes 	VHS 12.6 minutes 
<b>Length</b>	31.424 miles 50.571 km 	30.653 49.331 km 	34.985 miles 56.303 km 
<b>Population/Employment Catchment</b>	Not Applicable		
<i>Maximize Connectivity and Accessibility.</i>			
<b>Intermodal Connections</b>	*See Modesto Briggsmore Station Option 	*See Modesto Downtown Station Option 	*See Modesto West Station Option 
<i>Minimize Operating and Capital Costs.</i>			
<b>Length</b>	Route meanders 	Route meanders 	Route meanders 
<b>Operational Issues</b>	Diverges from UP and ACE alignment, travels on new alignment, merges with BNSF alignment. 	Diverges from UP and ACE alignment, travels on new alignment, merges with UP alignment. 	Diverges from UP and ACE alignment, travels on new alignment. 

Evaluation Criteria	Express Loop/BNSF (Downtown Stockton to Modesto Briggsmore)	Express Loop/UPRR (Downtown Stockton to Downtown Modesto)	W99 (Downtown Stockton to Modesto West)
<b>Construction Issues</b>	Downtown location and grade separations, esp. rail crossings south of the Downtown Stockton station. Water table in Delta floodplain. New urban ROW.	Downtown location and grade separations, especially rail crossings south of the Downtown Stockton station. Water table issues in floodplain of Delta. New urban right-of-way first 10 miles.	Downtown location and grade separations, especially rail crossings south of Downtown Stockton station. Water table issues in floodplain of Delta. New urban right-of-way first 10 miles.
			
<b>Capital Cost</b>	Moderate to high cost because of Stockton Downtown costs.	Moderate cost. Downtown costs in Stockton	Moderate cost. Downtown costs in Stockton
			
<b>Right-of-Way Issues/Cost</b>	New urban alignment New alignment BNSF upgrade	New urban alignment New alignment UP upgrade	New urban alignment New alignment
			
<i>Maximize Compatibility with Existing and Planned Development.</i>			
<b>Land Use Compatibility and Conflicts</b>			
Percent of Conflicting Existing Land Uses within adjacent buffers (Residences, Institutions, Recreation, Parks, and Open Space)	9.25	13.31	8.33
			
<b>Visual Quality Impacts</b>			
Scenic Corridor and River Crossings	3.00	3.00	4.00
			

<b>Evaluation Criteria</b>	<b>Express Loop/BNSF (Downtown Stockton to Modesto Briggsmore)</b>	<b>Express Loop/UPRR (Downtown Stockton to Downtown Modesto)</b>	<b>W99 (Downtown Stockton to Modesto West)</b>
<i>Minimize Impacts on Natural Resources.</i>			
<b>Water Resources Impacts</b>	*Alignment adjacent to existing rail right-of-way		*Impacts on "new corridor"
Number of Natural Stream/Lake Crossings (linear ft)	10.00 (500)	5.00 (250)	11.00 (550)
Number of Wetland Crossings	3.00	2.00	3.00
Total Acreage of Wetlands Within ROW	3.61	0.37	1.81
	○	◐	○
<b>Floodplain Impacts</b>	*Alignment adjacent to existing rail right-of-way		*Impacts on "new corridor"
Number of FEMA Floodplain Crossings	9.00	3.00	11.00
Associated Length (meters) of Floodplain Crossings	6741.69	1002.95	7314.69
Total Acreage of FEMA Floodplain Crossings	43.97	7.04	48.45
	○	●	○
<b>Threatened &amp; Endangered Species Impacts</b>			
Count of Species w/in ROW	6.00	5.00	5.00
Count of Species along ROW	6.00	7.00	0.00
Sensitive Habitat Acreage w/in ROW	0.00	2.00	0.00
Net Sensitive Habitat Acreage along ROW	0.00	0.00	
	◑	○	◑
<i>Minimize Impacts on Social and Economic Resources.</i>			
<b>Environmental Justice Impacts (Demographics)</b>			
Minority Within 1,400' Buffer – 1990 Population	20449.00	19138.00	17917.00
Low Income Within 1,400' Buffer – 1990 Households	134.00	196.00	134.00
	○	○	○

<b>Evaluation Criteria</b>	<b>Express Loop/BNSF (Downtown Stockton to Modesto Briggsmore)</b>	<b>Express Loop/UPRR (Downtown Stockton to Downtown Modesto)</b>	<b>W99 (Downtown Stockton to Modesto West)</b>
<b>Farmland Impacts</b>	*Alignment adjacent to existing rail right-of-way	*Alignment adjacent to existing rail right-of-way	*Impacts on "new corridor"
Total Acreage of Important Farmlands Within ROW (Prime, Unique, and Statewide Importance)	219.51	204.29	267.16
			
<i>Minimize Impacts on Cultural Resources.</i>			
<b>Cultural Resources Impacts</b>			
Number of National Register Resources Within ROW	0.00	0.00	0.00
Number of National Register Resources along ROW	0.00	0.00	0.00
			
<b>Parks &amp; Recreation/Wildlife Refuge Impacts</b>			
Total Acreage Parks/Recreation Areas in ROW	0.00	0.00	0.00
Total Acreage of Parks/Recreation Areas along ROW	2.12	0.21	1.82
Incidences of Parks/Recreation Areas in ROW	0.00	0.00	0.00
Incidences of Parks/Recreation Areas along ROW	3.00	1.00	2.00
			
<i>Maximize Avoidance of Areas with Geologic and Soils Constraints.</i>			
<b>Soils/Slope Constraints</b>			
Not a Distinguishing Factor			
<b>Seismic Constraints</b>			
Not a Distinguishing Factor			
<i>Maximize Avoidance of Areas with Potential Hazardous Materials.</i>			
<b>Hazardous Materials/Waste Constraints</b>			
Not a Distinguishing Factor			





  
**Least Favorable** **Most Favorable**
















**Table 2-H-8**  
**Sacramento to Bakersfield – High-Speed Train Station Evaluation Matrix**  
**Stockton to Modesto Stations**

**Station** = Station Carried Forward

**Station** = Station Eliminated

**Station** = Primary or Secondary Reason for Elimination

Evaluation Criteria	Farmington Road	Downtown ACE	Stockton Airport
<i>Maximize Ridership/Revenue Potential.</i>			
<b>Travel Time</b>	Not Applicable	Not Applicable	Not Applicable
<b>Length</b>	Not Applicable	Not Applicable	Not Applicable
<b>Population/Employment Catchment</b>			
	●	●	●
<i>Maximize Connectivity and Accessibility.</i>			
<b>Intermodal Connections</b>	<ul style="list-style-type: none"> <li>• Outlying location.</li> <li>• Freeway access: ¼ mile from 99 Fwy on SR 4</li> <li>• Street access: Distant from Stockton proper.</li> <li>• Parking: unconstrained</li> <li>• Transit: No service at present</li> <li>• Other rail: Amtrak considering a consolidated Stockton station at site; if built, a good transfer station for East Bay destinations via San Joaquin</li> </ul>	<ul style="list-style-type: none"> <li>• Downtown location.</li> <li>• Freeway access: SR 4 Crosstown freeway, then to I-5 and 99 Fwy, via city streets.</li> <li>• Street access: on central city street grid.</li> <li>• Parking: ample land opportunity in vicinity</li> <li>• Transit: On city bus routes</li> <li>• Other rail: shares site with ACE commuter rail station, present Amtrak San Joaquin to Sacramento</li> </ul>	<ul style="list-style-type: none"> <li>• Outlying location.</li> <li>• Freeway access: Distant via county road.</li> <li>• Street access: Distant from central Stockton, access via Airport Way.</li> <li>• Parking: unconstrained, shared with airport</li> <li>• Transit: Airport bus to city.</li> <li>• Other rail:</li> <li>• Airport: connects to limited commercial flights</li> <li>• Airport ground facilities: rental car agencies</li> </ul>
	●	●	●
<i>Minimize Operating and Capital Costs.</i>			
<b>Length</b>	Not Applicable	Not Applicable	Not Applicable

Evaluation Criteria	Farmington Road	Downtown ACE	Stockton Airport
<b>Operational Issues</b>	<ul style="list-style-type: none"> <li>On stopping track alignment</li> <li>Railroad interaction: along BNSF r-o-w, normal coordination</li> </ul>	<ul style="list-style-type: none"> <li>On stopping track alignment</li> <li>Railroad interaction: just north of level crossing of BNSF and UP main lines in Valley. Coordination with ACE terminal operations at station site.</li> </ul>	<ul style="list-style-type: none"> <li>On stopping track alignment</li> <li>Railroad interaction: just south of level crossing of BNSF and UP mainlines in Valley.</li> <li>Airport interaction: location must be coordinated to avoid clear zones of airport.</li> </ul>
			
<b>Construction Issues</b>	<ul style="list-style-type: none"> <li>Relatively straightforward, open-field construction at station.</li> <li>Approach track must cross 99 Fwy on long structure.</li> </ul>	<ul style="list-style-type: none"> <li>Must be elevated or depressed through most of city, especially downtown, to coexist with street grid and with congested freight railroads to the south of site. Aerial alignment must contend with 4 Fwy, trench alignment must contend with water table issues.</li> </ul>	<ul style="list-style-type: none"> <li>Station relatively straightforward, except for aviation constraints. Station stopping track uses same alignment as downtown station, must resolve all same issues.</li> </ul>
			
<b>Capital Cost</b>	Moderate.	High, due to central urban location and rail interaction issues.	Moderate at station site. Approach alignments more challenging.
			
<b>Right-of-Way Issues/Cost</b>	Follows BNSF r-o-w.	City may use redevelopment powers to enhance land assembly and cost.	All new r-o-w to reach site.
			
<i>Maximize Compatibility with Existing and Planned Development.</i>			
<b>Land Use Compatibility and Conflicts</b>			
Percent of Conflicting Existing Land Uses (Residences, Institutions, Recreational Areas, and Open Space) within Station Area	17.98	54.61	16.18
Primary Land Uses (acreage) within station area	Farmland/Agriculture (158); Industrial (255); Residential (90)	Commercial (107); Industrial (72); Institutional (104); Mixed Use (50); Residential (148)	Farmland/Agriculture (422); Institutional (81)
			

Evaluation Criteria	Farmington Road	Downtown ACE	Stockton Airport
<b>Visual Quality Impacts</b>			
Percent of Visually Sensitive Existing Land Uses (Residential, Institutional, Recreational Areas, and Open Space)	17.98	54.61	16.18
Number of scenic corridor and scenic river crossings	0	0	0
			
<i>Minimize Impacts on Natural Resources.</i>			
<b>Water Resources Impacts</b>			
Number of Natural Stream	2	0	1
Number of Wetland Crossings	2	0	0
Total Acreage of Wetlands within Station Area	1.03	0	0
			
<b>Floodplain Impacts</b>			
Number of FEMA Floodplain Crossings	4	0	2
Total Acreage of FEMA Floodplain Crossings within Station Area	6.81	0	289.85
			
<b>Threatened &amp; Endangered Species Impacts</b>			
Count of Species	1	0	0
Acreage of Sensitive Habitat within Station Area	0	0	0
			

Evaluation Criteria	Farmington Road	Downtown ACE	Stockton Airport
<i>Minimize Impacts on Social and Economic Resources.</i>			
<b>Environmental Justice Impacts (Demographics)</b>			
Minority Within 1,400' Buffer – 1990 Population	0	7172	2036
Low Income Within 1,400' Buffer – 1990 Households	0	134	0
	●	○	◐
<b>Farmland Impacts</b>			
Total Acreage of Important Farmlands Within Station Area (Prime, Unique, and Statewide Importance)	277.51	0	503.02
	◐	●	○
<i>Minimize Impacts on Cultural Resources.</i>			
<b>Cultural Resources Impacts</b>			
Number of National Register Resources Within Station Area	0	2	0
	●	○	●
<b>Parks &amp; Recreation/Wildlife Refuge Impacts</b>			
Count of Parks/Recreation Areas	0	1	0
Total Acreage Parks/Recreation Areas in Station Area	0	2.96	0
	●	○	●

Evaluation Criteria	Farmington Road	Downtown ACE	Stockton Airport
<i>Maximize Avoidance of Areas with Geologic and Soils Constraints.</i>			
<b>Soils/Slope Constraints</b>			
Not a Distinguishing Factor			
<b>Seismic Constraints</b>			
Not a Distinguishing Factor			
<i>Maximize Avoidance of Areas with Potential Hazardous Materials.</i>			
<b>Hazardous Materials/Waste Constraints</b>			
Not a Distinguishing Factor			







Least Favorable      Most Favorable

























**Table 2-H-9**  
**Sacramento to Bakersfield – High-Speed Train Alignment Evaluation Matrix**  
**Modesto to Merced Alignment**

















**Alignment** = Alignment Carried Forward

**Alignment** = Alignment Eliminated

= Primary or Secondary Reason for Elimination

Evaluation Criteria	BNSF (Modesto Briggsmore to Downtown Merced)	W99 (Modesto West to Merced Municipal Airport)	UPRR (Downtown Modesto to Downtown Merced)	E99 (Modesto Briggsmore to Merced University)
<i>Maximize Ridership/Revenue Potential.</i>				
<b>Travel Time</b>	VHS 13.6 minutes	VHS 14.4 minutes	VHS 13.5 minutes	VHS 12.9 minutes
<b>Length</b>	37.42 miles 60.22 km	40.2 miles 64.6 km	37.04 miles 59.60 km	34.60 miles 55.68 km
<b>Population/Employment Catchment</b>	*See Modesto Briggsmore (Amtrak) Station option	*See Modesto West Station option	*See Downtown Modesto Station option	*See Modesto East Station option
<i>Maximize Connectivity and Accessibility.</i>				
<b>Intermodal Connections</b>	*See Modesto Briggsmore (Amtrak) Station option	*See Modesto West Station option	*See Downtown Modesto Station option	*See Modesto East Station option
<i>Minimize Operating and Capital Costs.</i>				
<b>Length</b>	Short but more urban construction	Longer than other options but all new right-of-way	Short but more urban construction	Short and low cost
<b>Operational Issues</b>	Mostly BNSF with new ROW link to Downtown Merced	New right-of-way	UP Freight coordination	New alignment most of the route
<b>Construction Issues</b>	Freight and Amtrak coordination	New right-of-way	UP coordination	Freight coordination Amtrak coordination
<b>Capital Cost</b>	Moderate to high cost	High cost	High cost	Moderate cost

<b>Evaluation Criteria</b>	<b>BNSF (Modesto Briggsmore to Downtown Merced)</b>	<b>W99 (Modesto West to Merced Municipal Airport)</b>	<b>UPRR (Downtown Modesto to Downtown Merced)</b>	<b>E99 (Modesto Briggsmore to Merced University)</b>
<b>Right-of-Way Issues/Cost</b>	BNSF r/w and new r/w link to Downtown Merced	New ROW	UP ROW	Mostly new alignment
				
<i>Maximize Compatibility with Existing and Planned Development.</i>				
<b>Land Use Compatibility and Conflicts</b>				
Percent of Conflicting Existing Land Uses within adjacent buffers (Residences, Institutions, Recreation, Parks, and Open Space)	8.36	7.73	12.33	6.38
				
<b>Visual Quality Impacts</b>				
Scenic Corridor and River Crossings	2.00	1.00	1.00	3.00
				
<i>Minimize Impacts on Natural Resources.</i>				
<b>Water Resources Impacts</b>				
Number of Natural Stream/Lake Crossings (linear ft)	6.00 (300)	5.00 (250)	4.00 (200)	8.00 (400)
Number of Wetland Crossings	4.00	7.00	3.00	9.00
Total Acreage of Wetlands Within ROW	1.46	2.12	0.38	4.19
				
<b>Floodplain Impacts</b>				
Number of FEMA Floodplain Crossings	8.00	3.00	5.00	5.00
Associated Length (meters) of Floodplain Crossings	8987.31	7298.04	6828.69	2461.15
Total Acreage of FEMA Floodplain Crossings	50.40	54.88	44.93	18.51
				
<b>Threatened &amp; Endangered Species Impacts</b>				
Count of Species w/in ROW	1.00	0.00	3.00	2.00
Count of Species along ROW	0.00	1.00	1.00	0.00
Sensitive Habitat Acreage w/in ROW	0.00	0.00	0.00	9.08
Net Sensitive Habitat Acreage along ROW	0.00	0.00	0.00	27.79
				

<b>Evaluation Criteria</b>	<b>BNSF</b> <b>(Modesto Briggsmore to</b> <b>Downtown Merced)</b>	<b>W99</b> <b>(Modesto West to Merced</b> <b>Municipal Airport)</b>	<b>UPRR</b> <b>(Downtown Modesto to</b> <b>Downtown Merced)</b>	<b>E99</b> <b>(Modesto Briggsmore to</b> <b>Merced University)</b>
<i>Minimize Impacts on Social and Economic Resources.</i>				
<b>Environmental Justice Impacts</b> <b>(Demographics)</b>				
Minority Within 1,400' Buffer – 1990 Population	7786.00	8316.00	19562.00	3926.00
Low Income Within 1,400' Buffer – 1990 Households	0.00	0.00	121.00	0.00
				
<b>Farmland Impacts</b>	*Low severance issues for alignment adjacent to existing rail r/w	* High severance impacts with "new" corridor	*Low severance issues for alignment adjacent to existing rail r/w	* High severance impacts with "new" corridor
Total Acreage of Important Farmlands Within ROW (Prime, Unique, and Statewide Importance)	199.83	422.39	145.83	296.41
				
<b>Cultural Resources Impacts</b>				
Number of National Register Resources Within ROW	0.00	0.00	0.00	0.00
Number of National Register Resources along ROW	0.00	0.00	0.00	0.00
				
<b>Parks &amp; Recreation/Wildlife Refuge Impacts</b>				
Total Acreage Parks/Recreation Areas in ROW	14.26	1.70	11.90	0.00
Total Acreage of Parks/Recreation Areas along ROW	42.83	11.93	32.85	0.00
Incidences of Parks/Recreation Areas in ROW	1.00	2.00	2.00	0.00
Incidences of Parks/Recreation Areas along ROW	1.00	0.00	3.00	0.00
				
<i>Maximize Avoidance of Areas with Geologic and Soils Constraints.</i>				
<b>Soils/Slope Constraints</b>				
Not a Distinguishing Factor				
<b>Seismic Constraints</b>				
Not a Distinguishing Factor				

Evaluation Criteria	BNSF (Modesto Briggsmore to Downtown Merced)	W99 (Modesto West to Merced Municipal Airport)	UPRR (Downtown Modesto to Downtown Merced)	E99 (Modesto Briggsmore to Merced University)
<i>Maximize Avoidance of Areas with Potential Hazardous Materials.</i>				
<b>Hazardous Materials/Waste Constraints</b>				
Not a Distinguishing Factor				






**Least Favorable**















**Most Favorable**

**Table 2-H-10**  
**Sacramento to Bakersfield – High-Speed Train Station Evaluation Matrix**  
**Modesto to Merced Stations**





















Station = Station Carried Forward


























Station = Station Eliminated

= Primary or Secondary Reason for Elimination

Evaluation Criteria	Modesto Amtrak -Briggsmore	Modesto Empire	Modesto SP Downtown	Modesto West	Modesto East
<i>Maximize Ridership/Revenue Potential.</i>					
<b>Travel Time</b>	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
<b>Length</b>	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
<b>Population/Employment Catchment</b>					
<i>Maximize Connectivity and Accessibility.</i>					
<b>Intermodal Connections</b>	<ul style="list-style-type: none"> <li>Suburban location</li> <li>Freeway access: distant from 99 Fwy</li> <li>Street access: off Briggsmore Rd, an arterial hwy in northeastern part of city</li> <li>Parking: ample land opportunity in vicinity, shared use with Amtrak</li> <li>Transit: served by MAX buses</li> <li>Other rail: Site of new Amtrak station. Potential transfer point for Amtrak San Joaquin service to the East Bay area.</li> </ul>	<ul style="list-style-type: none"> <li>Suburban location</li> <li>Freeway access: Distant from 99 Fwy</li> <li>Street access: on SR 132, Yosemite Avenue, a busy industrial highway. Intersection with Santa Fe Avenue a source of congestion.</li> <li>Parking: ample land opportunity in vicinity</li> <li>Transit: served by MAX buses</li> <li>Other rail: none</li> </ul>	<ul style="list-style-type: none"> <li>Downtown location</li> <li>Freeway access: within two blocks of 99 Fwy at Central Modesto exit</li> <li>Street access: on downtown street grid with considerable traffic congestion</li> <li>Parking: highly constrained in central core of city and on site.</li> <li>Transit: Existing SP Depot is MAX central transfer hub and transportation center.</li> <li>Other rail: none currently, possible future ACE extension</li> </ul>	<ul style="list-style-type: none"> <li>Outlying location</li> <li>Freeway access: distant from 99 Fwy</li> <li>Street access: on SR 132, Maze Blvd, a busy farm to market road</li> <li>Parking: unconstrained</li> <li>Transit: none</li> <li>Other rail: none</li> </ul>	
					

Evaluation Criteria	Modesto Amtrak -Briggsmore	Modesto Empire	Modesto SP Downtown	Modesto West	Modesto East
<i>Minimize Operating and Capital Costs.</i>					
<b>Length</b>	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
<b>Operational Issues</b>	<ul style="list-style-type: none"> <li>Stopping track alignment</li> <li>Railroad interaction: Along BNSF r-o-w, normal coordination</li> <li>Amtrak coordination necessary and mutually beneficial</li> </ul>	<ul style="list-style-type: none"> <li>Stopping track alignment</li> <li>Railroad interaction: Along BNSF r-o-w, normal coordination. Also junction with short line freight rail feeders, with much BNSF interchange activity</li> </ul>	<ul style="list-style-type: none"> <li>Stopping track alignment</li> <li>Railroad interaction: Along UP r-o-w, normal coordination. Constrained operating environment through central Modesto</li> </ul>	<ul style="list-style-type: none"> <li>Through track alignment</li> <li>Railroad interaction: none, new alignment</li> </ul>	
<b>Construction Issues</b>	Transfer station with Amtrak requires architectural and logistical care. Otherwise relatively straightforward construction.	Once ATSF Modesto station site. Appropriate site for HSR station straightforward. Alignment of HSR not to impede freight interchange may be complex, but manageable.	Site is narrow. Coexistence with historic depot an architectural and logistical challenge. Many grade separations throughout central city.	Standard intermediate station design.	None; open land.
<b>Capital Cost</b>	Moderate	Station costs moderate, access roadways and intersection solutions costly	Expected to be expensive, especially track approaches and grade separations.	Moderate to low.	Low; open site.
<b>Right-of-Way Issues/Cost</b>	Along BNSF, adequate r-o-w present for additional HSR presence	Along BNSF, adequate r-o-w present for additional HSR presence. Appropriate alignment for HSR to be determined.	Land assembly for station and facilities may be complicated.	Open agricultural land on new alignment.	Farmland issues but not developed. Low cost.

Evaluation Criteria	Modesto Amtrak -Briggsmore	Modesto Empire	Modesto SP Downtown	Modesto West	Modesto East
<i>Maximize Compatibility with Existing and Planned Development.</i>					
<b>Land Use Compatibility and Conflicts</b>					
Percent of Conflicting Existing Land Uses (Residences, Institutions, Recreational Areas, and Open Space) within Station Area	1.72	47.19	22.73	0	0
Primary Land Uses (acreage) within station area	Farmland/Agriculture (175); Mixed Use (141); Office (164)	Commercial (70); Farmland/Agriculture (74); Institutional (91); Residential (237)	Mixed Use (389); Residential (114)	Farmland /Agriculture (503)	Farmland/Agriculture (503.02)
					
<b>Visual Quality Impacts</b>					
Percent of Visually Sensitive Existing Land Uses (Residential, Institutional, Recreational Areas, and Open Space)	1.72	47.19	22.73	0	0
Number of scenic corridor and scenic river crossings	1	0	0	0	1
					
<i>Minimize Impacts on Natural Resources.</i>					
<b>Water Resources Impacts</b>					
Number of Natural Stream	1	0	0	0	1
Number of Wetland Crossings	1	0	0	0	0
Total Acreage of Wetlands within Station Area	2.09	0	0	0	0
					
<b>Floodplain Impacts</b>					
Number of FEMA Floodplain Crossings	1	0	0	0	1
Total Acreage of FEMA Floodplain Crossings within Station Area	2.64	0	0	0	9.19
					

Evaluation Criteria	Modesto Amtrak -Briggsmore	Modesto Empire	Modesto SP Downtown	Modesto West	Modesto East
<b>Threatened &amp; Endangered Species Impacts</b>					
Count of Species	1	1	1	1	0
Acreage of Sensitive Habitat within Station Area	0	0	0	0	0
					
<i>Minimize Impacts on Social and Economic Resources.</i>					
<b>Environmental Justice Impacts (Demographics)</b>					
Minority Within 1,400' Buffer – 1990 Population	0	0	5100	0	0
Low Income Within 1,400' Buffer – 1990 Households	0	0	158	0	0
					
<b>Farmland Impacts</b>					
Total Acreage of Important Farmlands Within Station Area (Prime, Unique, and Statewide Importance)	225.09	116.23	0	502.15	0
					
<i>Minimize Impacts on Cultural Resources.</i>					
<b>Cultural Resources Impacts</b>					
Number of National Register Resources Within Station Area	0	0	1	0	0
					
<b>Parks &amp; Recreation/Wildlife Refuge Impacts</b>					
Count of Parks/Recreation Areas	0	0	1	0	0
Total Acreage Parks/Recreation Areas in Station Area	0	0	0.70	0	0
					

Evaluation Criteria	Modesto Amtrak -Briggsmore	Modesto Empire	Modesto SP Downtown	Modesto West	Modesto East
<i>Maximize Avoidance of Areas with Geologic and Soils Constraints.</i>					
<b>Soils/Slope Constraints</b>					
Not a Distinguishing Factor					
<b>Seismic Constraints</b>					
Not a Distinguishing Factor					
<i>Maximize Avoidance of Areas with Potential Hazardous Materials.</i>					
<b>Hazardous Materials/Waste Constraints</b>					
Not a Distinguishing Factor					







Least Favorable      Most Favorable


























**Table 2-H-11**  
**Sacramento to Bakersfield – High-Speed Train Station Evaluation Matrix**  
**Merced to Fresno Stations**

**Station** = Station Carried Forward





















**Alignment** = Station Eliminated

**Primary or Secondary Reason for Elimination**

Evaluation Criteria	Castle	Merced University	Merced Municipal Airport	Merced UPRR Downtown	Plainsburg
<i>Maximize Ridership/Revenue Potential.</i>					
<b>Travel Time</b>	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
<b>Length</b>	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
<b>Population/Employment Catchment</b>					
	●	●	●	●	●
<i>Maximize Connectivity and Accessibility.</i>					
<b>Intermodal Connections</b>	<ul style="list-style-type: none"> <li>Suburban location for Merced, closer, to central Atwater</li> <li>Freeway access: SR 99 ca 3 miles</li> <li>Arterial access: Santa Fe Avenue (J7), planned Bellevue Expressway, ca. 1 mile</li> <li>Parking adequate at site</li> <li>Transit bus and shuttle foreseeable in future</li> <li>No Amtrak connection</li> </ul>	<ul style="list-style-type: none"> <li>New suburban site in future University planned area</li> <li>Freeway access: via planned expressway, about 3 miles</li> <li>Street access: New Bellevue expressway, in planning.</li> <li>Parking adequate in future design.</li> <li>Transit: feasible in future.</li> <li>Other rail: possible future LRT.</li> </ul>	<ul style="list-style-type: none"> <li>Suburban location.</li> <li>Freeway access: SR 99 ca. 1 mile</li> <li>Street access: local streets only</li> <li>Parking adequate at location</li> <li>Transit: bus only</li> <li>Other rail: none</li> </ul>	<ul style="list-style-type: none"> <li>Downtown location.</li> <li>Freeway access: SR 99 2 blocks</li> <li>Street access: local downtown grid</li> <li>Parking: may be constrained at site</li> <li>Transit: Hub for Merced County transit system</li> <li>Other rail: none</li> </ul>	<ul style="list-style-type: none"> <li>Downtown site in small community</li> <li>Freeway access: distant</li> <li>Street access: local roads</li> <li>Parking: adequate at site</li> <li>Transit: bus only</li> <li>Other rail: no Amtrak connection</li> </ul>
	●	●	●	●	○
<i>Minimize Operating and Capital Costs.</i>					
<b>Length</b>	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable

Evaluation Criteria	Castle	Merced University	Merced Municipal Airport	Merced UPRR Downtown	Plainsburg
<b>Operational Issues</b>	High-speed track off BNSF or E99. Station can serve all alignments to south.	Newly designed high-speed track in new community.	High-speed track off SP or W99. Station can serve all alignments from north, SP or W99 alignments to south.	Constrained urban r-o-w. Stopping track configuration only. Freight compatibility issues.	On existing BNSF line. High-speed track requires relaying curves in settled area.
					
<b>Construction Issues</b>	No outstanding issues. Must coordinate with airport and local authorities, including new UC campus.	Greenfield site.	No outstanding issues.	Urban r-o-w, Narrow freight corridor.	Minimal.
					
<b>Capital Cost</b>	Relatively low	Relatively low.	Relatively low.	Relatively high.	Low.
					
<b>Right-of-Way Issues/Cost</b>	Military base reuse. Land owned by local joint powers board.	Must assemble new route in newly zoned urban area.	Industrial area, Airport owned by city.	Existing r-o-w. Must acquire land to fit.	Moderate.
					
<i>Maximize Compatibility with Existing and Planned Development.</i>					
<b>Land Use Compatibility and Conflicts</b>					
Percent of Conflicting Existing Land Uses (Residences, Institutions, Recreational Areas, and Open Space) within Station Area	0.20	16.02	8.59	45.01	14.33
Primary Land Uses (acreage) within station area	Farmland/Agriculture (294); Transportation (207)	Farmland/Agriculture (421); Residential (75)	Farmland/Agriculture (443); Institutional (42)	Commercial (173); Residential (157)	Farmland/Agriculture (396)
					

Evaluation Criteria	Castle	Merced University	Merced Municipal Airport	Merced UPRR Downtown	Plainsburg
<b>Visual Quality Impacts</b>					
Percent of Visually Sensitive Existing Land Uses (Residential, Institutional, Recreational Areas, and Open Space)	0.20	16.02	8.59	45.01	14.33
Number of scenic corridor and scenic river crossings	0	0	0	12	0
	●	◐	◑	○	◐
<i>Minimize Impacts on Natural Resources.</i>					
<b>Water Resources Impacts</b>					
Number of Natural Stream	0	1	0	0	2
Number of Wetland Crossings	1	4	0	0	2
Total Acreage of Wetlands within Station Area	0.48	44.59	0	0	1.25
	◑	○	●	●	◑
<b>Floodplain Impacts</b>					
Number of FEMA Floodplain Crossings	0	1	1	2	1
Total Acreage of FEMA Floodplain Crossings within Station Area	0	203.57	503.02	467.39	428.71
	●	◐	○	◑	◑
<b>Threatened &amp; Endangered Species Impacts</b>					
Count of Species	0	2	1	1	0
Acreage of Sensitive Habitat within Station Area	30.53	0	0	0	0
	○	◐	◑	◑	●

Evaluation Criteria	Castle	Merced University	Merced Municipal Airport	Merced UPRR Downtown	Plainsburg
<i>Minimize Impacts on Social and Economic Resources.</i>					
<b>Environmental Justice Impacts (Demographics)</b>					
Minority Within 1,400' Buffer – 1990 Population	1963	0	3923	14635	2500
Low Income Within 1,400' Buffer – 1990 Households	0	0	0	0	0
					
<b>Farmland Impacts</b>					
Total Acreage of Important Farmlands Within Station Area (Prime, Unique, and Statewide Importance)	12.79	157.79	0	0	420.83
					
<i>Minimize Impacts on Cultural Resources.</i>					
<b>Cultural Resources Impacts</b>					
Number of National Register Resources Within Station Area	0	0	0	7	0
					
<b>Parks &amp; Recreation/Wildlife Refuge Impacts</b>					
Total Acreage Parks/Recreation Areas in Station Area	0	2	0	13	0
Count of Parks/Recreation Areas	0	1.16	0	23.19	0
					
<i>Maximize Avoidance of Areas with Geologic and Soils Constraints.</i>					
<b>Soils/Slope Constraints</b>					
Not a Distinguishing Factor					

Evaluation Criteria	Castle	Merced University	Merced Municipal Airport	Merced UPRR Downtown	Plainsburg
<b>Seismic Constraints</b>					
Not a Distinguishing Factor					
<i>Maximize Avoidance of Areas with Potential Hazardous Materials.</i>					
<b>Hazardous Materials/Waste Constraints</b>					
Not a Distinguishing Factor					


































  
**Least Favorable**
**Most Favorable**





















**Table 2-H-12**  
**Sacramento to Bakersfield – High-Speed Train Alignment Evaluation Matrix**  
**Merced to Fresno Alignment**

**Alignment** = Alignment Carried Forward









**Alignment** = Alignment Eliminated

**Alignment** = Primary or Secondary Reason for Elimination

<b>Evaluation Criteria</b>	<b>UPRR</b> (Downtown Merced to Downtown Fresno)	<b>W99</b> (Merced Downtown to Fresno West)	<b>BNSF</b> (Downtown Merced to Downtown Fresno)	<b>E99</b> (Merced Castle to Fresno East)
<i>Maximize Ridership/Revenue Potential.</i>				
<b>Travel Time</b>	VHS 18.5 minutes 	VHS 17.6 minutes 	VHS 21.0 minutes 	VHS 24.0 minutes 
<b>Length</b>	55.30 miles 88.99 km 	51.87 miles 83.48 km 	57.42 miles 92.4 km 	75.32 miles 121.21 km 
<b>Population/Employment Catchment</b>	*See Fresno Downtown Station option 	*See Fresno West Station option 	*See Fresno Downtown Station option 	*See Fresno East Station option 
<i>Maximize Connectivity and Accessibility.</i>				
<b>Intermodal Connections</b>	*See Fresno Downtown Station option 	*See Fresno West Station option 	*See Fresno Downtown Station option 	*See Fresno East Station option 
<i>Minimize Operating and Capital Costs.</i>				
<b>Length</b>	Short, but costly through urban areas 	Less costly than other options 	Less urban area than UP 	Longer, goes well to the east of direct route 
<b>Operational Issues</b>	SP coordination full length 	New alignment SP Merced 	BNSF and Amtrak coordination 	BNSF and Amtrak coordination 
<b>Construction Issues</b>	SP coordination full length Downtown Fresno and Merced 	Merced downtown 	BNSF/Amtrak coordination 	New alignment/BNSF/New BNSF coordination 

Evaluation Criteria	UPRR (Downtown Merced to Downtown Fresno)	W99 (Merced Downtown to Fresno West)	BNSF (Downtown Merced to Downtown Fresno)	E99 (Merced Castle to Fresno East)
<b>Capital Cost</b>	High cost	Low cost	Moderate cost	Moderate cost
				
<b>Right-of-Way Issues/Cost</b>	SP coordination and cost full length	Merced downtown New ROW	BNSF/Amtrak coordination	New ROW and BNSF
				
<i>Maximize Compatibility with Existing and Planned Development.</i>				
<b>Land Use Compatibility and Conflicts</b>				
Percent of Conflicting Existing Land Uses within adjacent buffers (Residences, Institutions, Recreation, Parks, and Open Space)	18.83	23.57	25.11	23.10
				
<b>Visual Quality Impacts</b>				
Scenic Corridor and River Crossings	2.00	2.00	2.00	2.00
				
<i>Minimize Impacts on Natural Resources.</i>				
<b>Water Resources Impacts</b>				
Number of Natural Stream/Lake Crossings (linear ft)	9.00 (450)	13.00 (650)	23.00 (1,150)	34.00 (1,700)
Number of Wetland Crossings	6.00	18.00	20.00	28.00
Total Acreage of Wetlands Within ROW	4.39	25.18	77.78	82.75
				

Evaluation Criteria	UPRR (Downtown Merced to Downtown Fresno)	W99 (Merced Downtown to Fresno West)	BNSF (Downtown Merced to Downtown Fresno)	E99 (Merced Castle to Fresno East)
<b>Floodplain Impacts</b>				
Number of FEMA Floodplain Crossings	13.00	18.00	20.00	14.00
Associated Length (meters) of Floodplain Crossings	20558.88	25308.03	15428.81	19050.25
Total Acreage of FEMA Floodplain Crossings	138.01	178.59	104.17	136.50
<b>Threatened &amp; Endangered Species Impacts</b>				
Count of Species w/in ROW	2.00	2.00	20.00	19.00
Count of Species along ROW	1.00	0.00	0.00	0.00
Sensitive Habitat Acreage w/in ROW	0.00	38.24	83.52	83.52
Net Sensitive Habitat Acreage along ROW	0.00	121.01	252.10	252.10
<i>Minimize Impacts on Social and Economic Resources.</i>				
<b>Environmental Justice Impacts (Demographics)</b>				
Minority Within 1,400' Buffer – 1990 Population	22376.00	10365.00	20469.00	9149.00
Low Income Within 1,400' Buffer – 1990 Households	209.00	164.00	0.00	0.00
<b>Farmland Impacts</b>				
Total Acreage of Important Farmlands Within ROW (Prime, Unique, and Statewide Importance)	117.18	398.17	319.78	501.10

Evaluation Criteria	UPRR (Downtown Merced to Downtown Fresno)	W99 (Merced Downtown to Fresno West)	BNSF (Downtown Merced to Downtown Fresno)	E99 (Merced Castle to Fresno East)
<i>Minimize Impacts on Cultural Resources.</i>				
<b>Cultural Resources Impacts</b>				
Number of National Register Resources Within ROW	0.00	0.00	0.00	0.00
Number of National Register Resources along ROW	2.00	1.00	0.00	0.00
				
<b>Parks &amp; Recreation/Wildlife Refuge Impacts</b>				
Total Acreage Parks/Recreation Areas in ROW	0.00	0.00	0.00	4.16
Total Acreage of Parks/Recreation Areas along ROW	0.00	0.00	1.01	12.41
Incidences of Parks/Recreation Areas in ROW	0.00	0.00	0.00	2.00
Incidences of Parks/Recreation Areas along ROW	0.00	0.00	2.00	3.00
				
<i>Maximize Avoidance of Areas with Geologic and Soils Constraints.</i>				
<b>Soils/Slope Constraints</b>				
Not a Distinguishing Factor				
<b>Seismic Constraints</b>				
Not a Distinguishing Factor				
<i>Maximize Avoidance of Areas with Potential Hazardous Materials.</i>				
<b>Hazardous Materials/Waste Constraints</b>				
Not a Distinguishing Factor				







Least Favorable      Most Favorable

**Table 2-H-13**  
**Sacramento to Bakersfield – High-Speed Train Station Evaluation Matrix**  
**Fresno to Tulare Stations**





















Station = Station Carried Forward

Station = Station Eliminated

= Primary or Secondary Reason for Elimination

Evaluation Criteria	Fresno Downtown	Chandler Field	Fresno Amtrak	Fresno Yosemite International Airport
<i>Maximize Ridership/Revenue Potential.</i>				
<b>Travel Time</b>	Not Applicable	Not Applicable	Not Applicable	Not Applicable
<b>Length</b>	Not Applicable	Not Applicable	Not Applicable	Not Applicable
<b>Population/Employment Catchment</b>				
<i>Maximize Connectivity and Accessibility.</i>				
<b>Intermodal Connections</b>	<ul style="list-style-type: none"> <li>Downtown location.</li> <li>Freeway access: Good access to SR 99 at several exits.</li> <li>Street access: downtown street grid</li> <li>Parking: may be limited at site</li> <li>Transit: good connections</li> <li>Amtrak connection with rail consolidation</li> </ul>	<ul style="list-style-type: none"> <li>Almost downtown location.</li> <li>Freeway access: Good via SR 99 and SR 180</li> <li>Street access: Limited local streets</li> <li>Parking adequate at site.</li> <li>Transit: bus only</li> <li>Other rail: none</li> </ul>	<ul style="list-style-type: none"> <li>Downtown location.</li> <li>Freeway access: ca. 1 mile to SR 99</li> <li>Street access: downtown street grid</li> <li>Parking: very limited</li> <li>Transit: buses only</li> <li>Other rail: Current Amtrak station, to be decommissioned after rail consolidation</li> </ul>	<ul style="list-style-type: none"> <li>Suburban location.</li> <li>Freeway access: SR 180 2 miles, SR 168 about 3 miles</li> <li>Street access: Arterial streets</li> <li>Parking adequate at shared airport facilities.</li> <li>Transit: Airport transit only</li> <li>Other rail: none</li> </ul>
<i>Minimize Operating and Capital Costs.</i>				
<b>Length</b>	Not Applicable	Not Applicable	Not Applicable	Not Applicable

Evaluation Criteria	Fresno Downtown	Chandler Field	Fresno Amtrak	Fresno Yosemite International Airport
<b>Operational Issues</b>	<ul style="list-style-type: none"> <li>Freight rail consolidation may preempt use of some of corridor, limiting space for 4-track HSR station</li> <li>Transfer and interface with Amtrak.</li> <li>Normal interaction with freight RRs.</li> </ul>	<ul style="list-style-type: none"> <li>No major issues.</li> <li>Would be stopping track off new W99 alignment.</li> </ul>	<ul style="list-style-type: none"> <li>Numerous local crossings and slow-speed curves on BNSF line.</li> </ul>	<ul style="list-style-type: none"> <li>No right-of-way feasible to site.</li> </ul>
<b>Construction Issues</b>	Possible narrow corridor for station with most expansive freight RR consolidation.	Normal aviation coordination required.	Constrained urban site.	Aviation coordination required.
<b>Capital Cost</b>	Relatively high.	Relatively low.	Relatively high because of urban site.	Not assessed. Relatively low.
<b>Right-of-Way Issues/Cost</b>	Availability of r-o-w interdependent with agreement with freight RRs on consolidation. Some city help with acquisition possible.	Assembly of entire new r-o-w required.	Constrained BNSF main line, to be taken out of service as result of rail consolidation.	No rail access possible.
<i>Maximize Compatibility with Existing and Planned Development.</i>				
<b>Land Use Compatibility and Conflicts</b>				
Percent of Conflicting Existing Land Uses (Residences, Institutions, Recreational Areas, and Open Space) within Station Area	22.78	48.44	45.30	71.01
Primary Land Uses (acreage) within station area	Commercial (158); Industrial (149); Mixed Use (53); Residential (47)	Industrial (44); Residential (184); Transportation (174)	Commercial (102); Industrial (94); Institutional (84); Residential (118)	Industrial (73); Mixed Use (48); Open Space (86); Residential (245)

Evaluation Criteria	Fresno Downtown	Chandler Field	Fresno Amtrak	Fresno Yosemite International Airport
<b>Visual Quality Impacts</b>				
Percent of Visually Sensitive Existing Land Uses (Residential, Institutional, Recreational Areas, and Open Space)	22.78	48.44	45.30	71.01
Number of scenic corridor and scenic river crossings	0	0	0	0
				
<i>Minimize Impacts on Natural Resources.</i>				
<b>Water Resources Impacts</b>				
Number of Natural Stream	0	0	0	0
Number of Wetland Crossings	1	1	1	3
Total Acreage of Wetlands within Station Area	1.22	7.13	2.08	2.95
				
<b>Floodplain Impacts</b>				
Number of FEMA Floodplain Crossings	1	0	1	1
Total Acreage of FEMA Floodplain Crossings within Station Area	265.83	0	235.82	8.02
				
<b>Threatened &amp; Endangered Species Impacts</b>				
Count of Species	0	0	0	0
Acreage of Sensitive Habitat within Station Area	0	0	0	0
				
<i>Minimize Impacts on Social and Economic Resources.</i>				
<b>Environmental Justice Impacts (Demographics)</b>				
Minority Within 1,400' Buffer – 1990 Population	7358	6368	8893	1139
Low Income Within 1,400' Buffer – 1990 Households	351	0	474	0
				

Evaluation Criteria	Fresno Downtown	Chandler Field	Fresno Amtrak	Fresno Yosemite International Airport
<b>Farmland Impacts</b>				
Total Acreage of Important Farmlands Within Station Area (Prime, Unique, and Statewide Importance)	0	8.40	0	0
	●	◐	●	●
<i>Minimize Impacts on Cultural Resources.</i>				
<b>Cultural Resources Impacts</b>				
Number of National Register Resources Within Station Area	5	0	11	0
	◐	●	○	●
<b>Parks &amp; Recreation/Wildlife Refuge Impacts</b>				
Total Acreage Parks/Recreation Areas in Station Area	1	4	2	1
Count of Parks/Recreation Areas	0.38	5.77	4.34	4.40
	●	○	◐	◐
<i>Maximize Avoidance of Areas with Geologic and Soils Constraints.</i>				
<b>Soils/Slope Constraints</b>				
Not a Distinguishing Factor				
<b>Seismic Constraints</b>				
Not a Distinguishing Factor				

Evaluation Criteria	Fresno Downtown	Chandler Field	Fresno Amtrak	Fresno Yosemite International Airport
<i>Maximize Avoidance of Areas with Potential Hazardous Materials.</i>				
<b>Hazardous Materials/Waste Constraints</b>				
Not a Distinguishing Factor				






**Least Favorable**













**Most Favorable**

**Table 2-H-13 continued**  
**Sacramento to Bakersfield – High-Speed Train Station Evaluation Matrix**  
**Fresno Stations**











**Alignment** = Alignment Carried Forward

**Alignment** = Alignment Eliminated

 = Primary or Secondary Reason for Elimination

Evaluation Criteria	Fresno East	Fresno West
<i>Maximize Ridership/Revenue Potential.</i>		
<b>Travel Time</b>	Not Applicable	Not Applicable
<b>Length</b>	Not Applicable	Not Applicable
<b>Population/Employment Catchment</b>		
		
<i>Maximize Connectivity and Accessibility.</i>		
<b>Intermodal Connections</b>	Exurban site. Freeway access: Close to conceptual SR 65 freeway in future. Arterial access via SR 168. No transit access.	Suburban site. Freeway access: distant from SR 99. Arterial access via SR 180 No transit access.
		
<i>Minimize Operating and Capital Costs.</i>		
<b>Length</b>	Not Applicable	Not Applicable
<b>Operational Issues</b>	New greenfields site. No major issues, except landside distance from urban area.	New greenfields site.
		
<b>Construction Issues</b>	New greenfields site. No major issues.	New greenfields site.

Evaluation Criteria	Fresno East	Fresno West
	●	●
<b>Capital Cost</b>	Low	Relatively low.
	●	◐
<b>Right-of-Way Issues/Cost</b>	Open agricultural land on new alignment of freeway.	Open agricultural land on new alignment.
	●	◐
<i>Maximize Compatibility with Existing and Planned Development.</i>		
<b>Land Use Compatibility and Conflicts</b>		
Percent of Conflicting Existing Land Uses (Residences, Institutions, Recreational Areas, and Open Space) within Station Area	0	0
Primary Land Uses (acreage) within station area	Farmlands/Agriculture (503.02)	Farmlands/Agriculture (503.02)
	●	●
<b>Visual Quality Impacts</b>		
Percent of Visually Sensitive Existing Land Uses (Residential, Institutional, Recreational Areas, and Open Space)	0	0
Number of scenic corridor and scenic river crossings	0	0
	●	●
<i>Minimize Impacts on Natural Resources.</i>		
<b>Water Resources Impacts</b>		
Number of Natural Stream	1	0
Number of Wetland Crossings	4	1
Total Acreage of Wetlands within Station Area	11.76	0.41
	○	●

Evaluation Criteria	Fresno East	Fresno West
<b>Floodplain Impacts</b>		
Number of FEMA Floodplain Crossings	2	0
Total Acreage of FEMA Floodplain Crossings within Station Area	123.45	0
		
<b>Threatened &amp; Endangered Species Impacts</b>		
Count of Species	0	0
Acreage of Sensitive Habitat within Station Area	0	0
		
<i>Minimize Impacts on Social and Economic Resources.</i>		
<b>Environmental Justice Impacts (Demographics)</b>		
Minority Within 1,400' Buffer – 1990 Population	0	0
Low Income Within 1,400' Buffer – 1990 Households	0	0
		
<b>Farmland Impacts</b>		
Total Acreage of Important Farmlands Within Station Area (Prime, Unique, and Statewide Importance)	153.17	485.1
		
<i>Minimize Impacts on Cultural Resources.</i>		
<b>Cultural Resources Impacts</b>		
Number of National Register Resources Within Station Area	0	0
		

Evaluation Criteria	Fresno East	Fresno West
<b>Parks &amp; Recreation/Wildlife Refuge Impacts</b>		
Total Acreage Parks/Recreation Areas in Station Area	0	0
Count of Parks/Recreation Areas	0	0
	●	●
<i>Maximize Avoidance of Areas with Geologic and Soils Constraints.</i>		
<b>Soils/Slope Constraints</b>		
Not a Distinguishing Factor		
<b>Seismic Constraints</b>		
Not a Distinguishing Factor		
<i>Maximize Avoidance of Areas with Potential Hazardous Materials.</i>		
<b>Hazardous Materials/Waste Constraints</b>		
Not a Distinguishing Factor		



Least Favorable













Most Favorable

























**Table 2-H-14**  
**Sacramento to Bakersfield – High-Speed Train Alignment Evaluation Matrix**  
**Fresno to Tulare Alignment**

















**Alignment** = Alignment Carried Forward

**Alignment** = Alignment Eliminated

**Alignment** = Primary or Secondary Reason for Elimination

<b>Evaluation Criteria</b>	<b>UPRR</b> (Downtown Fresno to Visalia Airport)	<b>BNSF</b> (Downtown Fresno to Hanford)	<b>E99</b> (Fresno East to Tulare East County)	<b>W99</b> (Downtown Fresno to Tulare West County)
<i>Maximize Ridership/Revenue Potential.</i>				
<b>Travel Time</b>	VHS 13.2 minutes	VHS 11.3 minutes	VHS 13.9 minutes	VHS 13.0 minutes
	Not Applicable	Not Applicable	Not Applicable	Not Applicable
<b>Length</b>	35.98 miles 57.90 km	28.85 miles 46.43 km	38.56 miles 62.06 km	34.99 miles 56.32 km
	Not Applicable	Not Applicable	Not Applicable	Not Applicable
<b>Population/Employment Catchment</b>	Not Applicable	Not Applicable	Not Applicable	Not Applicable
<i>Maximize Connectivity and Accessibility.</i>				
<b>Intermodal Connections</b>	*See Visalia Airport Station option	*See Hanford Station option	*See Tulare East County Station option	*See Tulare West County Station
				
<i>Minimize Operating and Capital Costs.</i>				
<b>Length</b>	UP coordination	BNSF and Amtrak coordination	New right-of-way	UP coordination
				
<b>Operational Issues</b>	UP coordination	BNSF and Amtrak coordination	New coordination	UP coordination
				

Evaluation Criteria	UPRR (Downtown Fresno to Visalia Airport)	BNSF (Downtown Fresno to Hanford)	E99 (Fresno East to Tulare East County)	W99 (Downtown Fresno to Tulare West County)
<b>Construction Issues</b>	Fresno downtown UP coordination	Fresno downtown BNSF and Amtrak coordination	New right-of-way	Fresno downtown UP coordination
				
<b>Capital Cost</b>	High cost because of Fresno downtown and UP	Moderate to high cost because of Fresno Downtown but BN less costly	Moderate to high cost E99 right-of-way	Low cost
				
<b>Right-of-Way Issues/Cost</b>	Fresno downtown UP ROW High cost per mile	Fresno downtown BNSF and Amtrak ROW	Fresno downtown UP ROW High cost per mile	Fresno downtown UP ROW Low cost per mile
				
<i>Maximize Compatibility with Existing and Planned Development.</i>				
<b>Land Use Compatibility and Conflicts</b>				
Percent of Conflicting Existing Land Uses within adjacent buffers (Residences, Institutions, Recreation, Parks, and Open Space)	6.07	12.63	6.92	0.82
				
<b>Visual Quality Impacts</b>				
Scenic Corridor and River Crossings	1.00	0.00	0.00	0.00
				
<i>Minimize Impacts on Natural Resources.</i>				
<b>Water Resources Impacts</b>				
Number of Natural Stream/Lake Crossings (linear ft)	10.00 (500)	6.00 (300)	13.00 (650)	4.00 (200)
Number of Wetland Crossings	7.00	3.00	16.00	8.00
Total Acreage of Wetlands Within ROW	17.50	1.52	9.71	19.73
				

Evaluation Criteria	UPRR (Downtown Fresno to Visalia Airport)	BNSF (Downtown Fresno to Hanford)	E99 (Fresno East to Tulare East County)	W99 (Downtown Fresno to Tulare West County)
<b>Floodplain Impacts</b>				
Number of FEMA Floodplain Crossings	8.00	5.00	14.00	9.00
Associated Length (meters) of Floodplain Crossings	12348.78	1644.41	11201.35	4347.91
Total Acreage of FEMA Floodplain Crossings	87.51	7.50	84.02	28.05
				
<b>Threatened &amp; Endangered Species Impacts</b>				
Count of Species w/in ROW	4.00	3.00	5.00	3.00
Count of Species along ROW	0.00	0.00	0.00	0.00
Sensitive Habitat Acreage w/in ROW	12.89	0.00	49.37	11.70
Net Sensitive Habitat Acreage along ROW	38.74	0.00	148.10	35.10
				
<i>Minimize Impacts on Social and Economic Resources.</i>				
<b>Environmental Justice Impacts (Demographics)</b>				
Minority Within 1,400' Buffer – 1990 Population	21555.00	8786.00	11722.00	9473.00
Low Income Within 1,400' Buffer – 1990 Households	158.00	158.00	0.00	158.00
				
<b>Farmland Impacts</b>		*Medium severance impacts with alignment mostly along BNSF	*High severance impacts with "new" corridor	*High severance impacts with "new" corridor
Total Acreage of Important Farmlands Within ROW (Prime, Unique, and Statewide Importance)	47.38	255.17	293.44	244.10
				

Evaluation Criteria	UPRR (Downtown Fresno to Visalia Airport)	BNSF (Downtown Fresno to Hanford)	E99 (Fresno East to Tulare East County)	W99 (Downtown Fresno to Tulare West County)
<i>Minimize Impacts on Cultural Resources.</i>				
<b>Cultural Resources Impacts</b>				
Number of National Register Resources Within ROW	0.00	0.00	0.00	0.00
Number of National Register Resources along ROW	0.00	0.00	0.00	0.00
	●	●	●	●
<b>Parks &amp; Recreation/Wildlife Refuge Impacts</b>				
Total Acreage Parks/Recreation Areas in ROW	0.00	0.60	0.43	0.00
Total Acreage of Parks/Recreation Areas along ROW	2.32	2.75	1.64	0.00
Incidences of Parks/Recreation Areas in ROW	0.00	1.00	1.00	0.00
Incidences of Parks/Recreation Areas along ROW	1.00	0.00	0.00	0.00
	◐	◐	◑	●
<i>Maximize Avoidance of Areas with Geologic and Soils Constraints.</i>				
<b>Soils/Slope Constraints</b>				
Not a Distinguishing Factor				
<b>Seismic Constraints</b>				
Not a Distinguishing Factor				
<i>Maximize Avoidance of Areas with Potential Hazardous Materials.</i>				
<b>Hazardous Materials/Waste Constraints</b>				
Not a Distinguishing Factor				



Least Favorable

Most Favorable

**Table 2-H-15**  
**Sacramento to Bakersfield – High-Speed Train Station Evaluation Matrix**  
**Tulare to Bakersfield Stations**





















**Station** = Station Carried Forward

**Station** = Station Eliminated

**Primary or Secondary Reason for Elimination**

Evaluation Criteria	Visalia Airport	Hanford	Tulare Airport	Tulare East	Tulare West
<i>Maximize Ridership/Revenue Potential.</i>					
<b>Travel Time</b>	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
<b>Length</b>	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
<b>Population/Employment Catchment</b>			Ranking Relative to the other Tulare County Station Options		
<i>Maximize Connectivity and Accessibility.</i>					
<b>Intermodal Connections</b>	<ul style="list-style-type: none"> <li>• Outlying location.</li> <li>• Freeway access: SR 99 and SR 198 adjacent.</li> <li>• Street access: local streets off freeway to airport.</li> <li>• Parking adequate at shared airport sites.</li> <li>• Transit: bus only.</li> <li>• Other rail: none.</li> </ul>	<ul style="list-style-type: none"> <li>• Suburban location in settled community.</li> <li>• Freeway access: SR 198 ca 1/2 mile.</li> <li>• Street access: Local city streets.</li> <li>• Parking: limited at site.</li> <li>• Transit: local Hanford transit good, long access routes from Visalia and other cities.</li> <li>• Other rail: Amtrak connection.</li> </ul>	<ul style="list-style-type: none"> <li>• Outlying location.</li> <li>• Freeway access: SR 99 adjacent.</li> <li>• Street access: local streets off freeway to airport.</li> <li>• Parking adequate at shared airport sites.</li> <li>• Transit: none.</li> <li>• Other rail: none.</li> </ul>	<ul style="list-style-type: none"> <li>• Exurban site.</li> <li>• Freeway access: close to conceptual SR 65 Freeway in future.</li> <li>• Arterial access via SR 198.</li> <li>• No transit access.</li> </ul>	<ul style="list-style-type: none"> <li>• Suburban location.</li> <li>• Freeway access: somewhat distant from SR 99.</li> <li>• Arterial access from SR 198.</li> <li>• No transit access.</li> </ul> <p>Ranking Relative to the other Tulare County Station Options</p>
<i>Minimize Operating and Capital Costs.</i>					
<b>Length</b>	Not Applicable	Not Applicable	Not Applicable	Not Applicable	

Evaluation Criteria	Visalia Airport	Hanford	Tulare Airport	Tulare East	Tulare West
<b>Operational Issues</b>	Compatibility with UP freight	Compatibility with BNSF freight	Compatibility with UP freight	New greenfields site. No major issues, except distance from urban areas.	New greenfields site. No major issues.
	●	●	●	●	●
<b>Construction Issues</b>	Open site. Some flooding issues possible.	Interaction with freight railroads and Amtrak station operations.	Open site.	New greenfields site. No major issues.	New greenfields site. No major issues.
	●	●	●	●	●
<b>Capital Cost</b>	Low	Low.	Low	Low	Low
	●	●	●	●	●
<b>Right-of-Way Issues/Cost</b>	City of Visalia owns land on both sides of freeway in vicinity of airport.I	RR right-of-way and adjacent uses.	Moderate.	Open agricultural land on new alignment of freeway.	New greenfields site on open agricultural land.
	●	●	●	●	●
<i>Maximize Compatibility with Existing and Planned Development.</i>					
<b>Land Use Compatibility and Conflicts</b>					
Percent of Conflicting Existing Land Uses (Residences, Institutions, Recreational Areas, and Open Space) within Station Area	34.54	67.18	25.85	6.59	3.99
Primary Land Uses (acreage) within station area	Farmlands/Agriculture (171); Open Space (63); Recreational (67); Transportation (133)	Commercial (94); Institutional (103); Office (56); Residential (235)	Farmlands/Agriculture (213); Industrial (144); Institutional (56); Residential (48)	Farmlands/Agriculture (468)	Farmlands/Agriculture (479)
	●	○	●	●	●
<b>Visual Quality Impacts</b>					
Percent of Visually Sensitive Existing Land Uses (Residential, Institutional, Recreational Areas, and Open Space)	34.54	67.18	25.85	6.59	3.99
Number of scenic corridor and scenic river crossings	0	0	0	1	0
	●	○	●	●	●

Evaluation Criteria	Visalia Airport	Hanford	Tulare Airport	Tulare East	Tulare West
<i>Minimize Impacts on Natural Resources.</i>					
<b>Water Resources Impacts</b>					
Number of Natural Stream	1	0	0	2	1
Number of Wetland Crossings	2	0	1	3	3
Total Acreage of Wetlands within Station Area	1.22	0	1.01	16.47	3.21
					
<b>Floodplain Impacts</b>					
Number of FEMA Floodplain Crossings	2	0	1	1	1
Total Acreage of FEMA Floodplain Crossings within Station Area	387.21	0	146.13	351.98	131.13
					
<b>Threatened &amp; Endangered Species Impacts</b>					
Count of Species	0	0	1	3	4
Acreage of Sensitive Habitat within Station Area	0	0	0	329.7	0
					
<i>Minimize Impacts on Social and Economic Resources.</i>					
<b>Environmental Justice Impacts (Demographics)</b>					
Minority Within 1,400' Buffer – 1990 Population	0	0	0	0	728
Low Income Within 1,400' Buffer – 1990 Households	0	0	0	0	0
					

Evaluation Criteria	Visalia Airport	Hanford	Tulare Airport	Tulare East	Tulare West
<b>Farmland Impacts</b>					
Total Acreage of Important Farmlands Within Station Area (Prime, Unique, and Statewide Importance)	0	0	0	0	0
	●	●	●	●	●
<i>Minimize Impacts on Cultural Resources.</i>					
<b>Cultural Resources Impacts</b>					
Number of National Register Resources Within Station Area	0	0	0	0	0
	●	●	●	●	●
<b>Parks &amp; Recreation/Wildlife Refuge Impacts</b>					
Total Acreage Parks/Recreation Areas in Station Area	0	0	1	1	0
Count of Parks/Recreation Areas	0	0	0.37	109.47	0
	●	●	◐	○	●
<i>Maximize Avoidance of Areas with Geologic and Soils Constraints.</i>					
<b>Soils/Slope Constraints</b>					
Not a Distinguishing Factor					

Evaluation Criteria	Visalia Airport	Hanford	Tulare Airport	Tulare East	Tulare West
<b>Seismic Constraints</b>					
Not a Distinguishing Factor					
<i>Maximize Avoidance of Areas with Potential Hazardous Materials.</i>					
<b>Hazardous Materials/Waste Constraints</b>					
Not a Distinguishing Factor					


















  
**Least Favorable**
**Most Favorable**

























**Table 2-H-16**  
**Sacramento to Bakersfield – High-Speed Train Alignment Evaluation Matrix**  
**Tulare to Bakersfield Alignment**













**Alignment** = Alignment Carried Forward

**Alignment** = Alignment Eliminated

**Alignment** = Primary or Secondary Reason for Elimination

<b>Evaluation Criteria</b>	<b>BNSF (Hanford to Bakersfield Truxton)</b>	<b>UPRR (Visalia Airport to Bakersfield Golden State)</b>	<b>E99 (Tulare East County to Bakersfield Golden State)</b>	<b>W99 (Tulare West County to Bakersfield Golden State)</b>
<i>Maximize Ridership/Revenue Potential.</i>				
<b>Travel Time</b>	VHS 25.7 minutes	VHS 22.3 minutes	VHS 22.4 minutes	VHS 22.5 minutes
	Not Applicable	Not Applicable	Not Applicable	Not Applicable
<b>Length</b>	81.70 miles 131.48 km	69.23 miles 111.41 km	69.73 miles 112.22 km	70.06 miles 112.75 km
	Not Applicable	Not Applicable	Not Applicable	Not Applicable
<b>Population/Employment Catchment</b>	Not Applicable	Not Applicable	Not Applicable	Not Applicable
<i>Maximize Connectivity and Accessibility.</i>				
<b>Intermodal Connections</b>	Not Applicable	Not Applicable	Not Applicable	Not Applicable
<i>Minimize Operating and Capital Costs.</i>				
<b>Length</b>	BNSF ROW	UP ROW	E99 and UP ROW	UP and new ROW
				
<b>Operational Issues</b>	BNSF coordination	UP coordination	UP coordination	UP coordination
				
<b>Construction Issues</b>	BNSF ROW	UP ROW Bakersfield downtown	UP ROW Bakersfield suburbs	UP ROW
				

Evaluation Criteria	BNSF (Hanford to Bakersfield Truxton)	UPRR (Visalia Airport to Bakersfield Golden State)	E99 (Tulare East County to Bakersfield Golden State)	W99 (Tulare West County to Bakersfield Golden State)
<b>Capital Cost</b>	High cost BN right of way	High cost UP right of way	Moderate costs	Moderate to high costs
				
<b>Right-of-Way Issues/Cost</b>	BNSF ROW	UP ROW Bakersfield downtown	UP ROW Bakersfield suburbs	UP ROW
				
<i>Maximize Compatibility with Existing and Planned Development.</i>				
<b>Land Use Compatibility and Conflicts</b>				
Percent of Conflicting Existing Land Uses within adjacent buffers (Residences, Institutions, Recreation, Parks, and Open Space)	11.62	12.73	4.70	8.01
				
<b>Visual Quality Impacts</b>				
Scenic Corridor and River Crossings	0.00	0.00	1.00	0.00
				
<i>Minimize Impacts on Natural Resources.</i>				
<b>Water Resources Impacts</b>				
Number of Natural Stream/Lake Crossings (linear ft)	9.00 (450)	8.00 (400)	9.00 (450)	12.00 (600)
Number of Wetland Crossings	25.00	26.00	15.00	21.00
Total Acreage of Wetlands Within ROW	45.50	7.35	8.92	30.93
				
<b>Floodplain Impacts</b>				
Number of FEMA Floodplain Crossings	11.00	8.00	12.00	10.00
Associated Length (meters) of Floodplain Crossings	19851.62	34332.27	19403.64	22835.27
Total Acreage of FEMA Floodplain Crossings	152.31	226.41	145.50	169.89
				

Evaluation Criteria	BNSF (Hanford to Bakersfield Truxton)	UPRR (Visalia Airport to Bakersfield Golden State)	E99 (Tulare East County to Bakersfield Golden State)	W99 (Tulare West County to Bakersfield Golden State)
<b>Threatened &amp; Endangered Species Impacts</b>				
Count of Species w/in ROW	28.00	23.00	6.00	16.00
Count of Species along ROW	1.00	1.00	1.00	0.00
Sensitive Habitat Acreage w/in ROW	26.49	2.51	4.96	20.15
Net Sensitive Habitat Acreage along ROW	101.26	18.20	25.53	71.03
				
<i>Minimize Impacts on Social and Economic Resources.</i>				
<b>Environmental Justice Impacts (Demographics)</b>				
Minority Within 1,400' Buffer – 1990 Population	24023.00	35551.00	3843.00	11609.00
Low Income Within 1,400' Buffer – 1990 Households	0.00	0.00	0.00	0.00
				
<b>Farmland Impacts</b>	*Low severance impacts along existing BNSF alignment		*High severance impacts with "new" corridor	*High severance impacts with "new" corridor
Total Acreage of Important Farmlands Within ROW (Prime, Unique, and Statewide Importance)	433.88	166.21	252.83	262.88
				
<i>Minimize Impacts on Cultural Resources.</i>				
<b>Cultural Resources Impacts</b>				
Number of National Register Resources Within ROW	1.00	0.00	0.00	0.00
Number of National Register Resources along ROW	0.00	0.00	0.00	0.00
	